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Media Access Control

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The **Media Access Control** (MAC) data communication protocol sub-layer is the part of the seven-layer OSI model data link layer (layer 2). It provides addressing and channel access control mechanisms that makes it possible for several terminals or network nodes to communicate within a multipoint network, typically a local area network (LAN) or metropolitan area network (MAN). A MAC protocol is not required in full-duplex point-to-point communication.

The MAC sub-layer acts as an interface between the Logical Link Control sublayer and the network's physical layer.

The MAC layer provides an addressing mechanism called physical address or MAC address. This is a unique serial number assigned to each network adapter, making it possible to deliver data packets to a destination within a subnetwork, i.e. a physical network without routers, for example an Ethernet network.

OSI Model
7 Application layer
6 Presentation layer
5 Session layer
4 Transport layer
3 Network layer
2 Data link layer
■ LLC sublayer ■ **MAC sublayer**
1 Physical layer

Media access control is often used as synonym to multiple access protocol, since the MAC sublayer provides the protocol and control mechanisms that are required for a certain channel access method. This makes it possible for several stations connected to the same physical medium to share it. Examples of shared physical media are bus networks, ring networks, hub networks, wireless networks and half-duplex point-to-point links.

Examples of packet mode multiple access protocols for wired multi-drop networks are:

- CSMA/CD (used in Ethernet and IEEE 802.3),
- Token bus (IEEE 802.4)
- Token ring (IEEE 802.5)
- Token passing (used in FDDI).

Examples of multiple access protocols that may be used in packet radio wireless networks are:

- CSMA/CA
- Slotted ALOHA
- Dynamic TDMA
- Reservation ALOHA (R-ALOHA).
- CDMA
- OFDMA

See also

- Channel access method
- MAC address
- Ethernet and CSMA/CD
- Token Ring and token passing

- CSMA/CA

References

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